

CLAIMS:

1. A method for minimizing a communication service disruption period during a handoff of a mobile station (STA) in a wireless local area network (WLAN), the method comprising the acts of:
 - (a) providing a plurality of APs in the network with an assigned channel of operation and a pre-configured nearest-neighbor table comprised of records, where each record includes at least a first field identifying a nearest neighbor AP and a second field identifying said nearest neighbor AP's channel of operation;
 - (b) transmitting said pre-configured nearest-neighbor table from said plurality of APs to associated STAs; and
 - (c) performing a prioritized search by said STA by first searching in each of said nearest neighbor AP's channel of operation as identified in said transmitted nearest-neighbor table to locate at least one candidate AP to form a new association with in said handoff.
- 15 2. The method of Claim 1, further comprising the act of sequentially searching those remaining channels of operation in said network not included in said table in the case where said at least one candidate AP was not located at said act (c).
- 20 3. The method of Claim 1, wherein transmitted pre-configured nearest-neighbor table is transmitted at said act (b) via a modified probe response frame including said pre-configured nearest-neighbor table.
- 25 4. The method of Claim 3, wherein said modified probe response frame is transmitted in response to a probe request by said STA.
5. The method of Claim 1, wherein said transmitted pre-configured nearest-neighbor table is transmitted at said act (b) via a modified beacon frame including said pre-configured nearest-neighbor table.
- 30 6. The method of Claim 1, wherein said transmitted pre-configured nearest-neighbor table is transmitted at said act (b) via a dedicated AP channel announcement

management frame including said pre-configured nearest-neighbor table.

7. The method of Claim 6, wherein said dedicated AP channel announcement management frame is broadcast to a BSS or unicast to a particular STA in said BSS.

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8. The method of Claim 6, wherein said nearest-neighbor table information is represented as a bitmap in said dedicated AP channel announcement management frame.

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9. The method of Claim 1, further comprising the acts of:
changing said assigned channel of operation by one of said plurality of APs; and
performing a frame exchange in accordance with a simple network management protocol (SNMP) between said one of said plurality of APs and all other APs to inform said all other APs of said channel change.

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10. A method for minimizing a communication service disruption period during a handoff of a mobile station (STA) in a wireless local area network (WLAN), the method comprising the acts of:

(1) transmitting a re-association frame from said STA to a first AP, said re-association frame including a second AP identifier;
(2) upon receiving the re-association frame at said first AP, storing said second AP identifier in a nearest neighbor table associated with said first AP;
(3) obtaining, by said first AP, a channel of operation corresponding to said second AP; and
(4) storing said channel of operation in said nearest-neighbor table.

11. The method of Claim 10, wherein said first AP is an AP with which said STA is attempting to form an association with in said handoff and said second AP is an AP with which said STA is currently associated with.

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12. The method of Claim 10, wherein said act (3) of obtaining, by said first AP, a channel of operation corresponding to said second AP is achieved via a frame exchange

between said first and second APs performed in accordance with a simple network management protocol (SNMP).

13. A method for minimizing a communication service disruption period during
5 a handoff of an STA in a wireless local area network (WLAN), the method comprising the acts of:

(1) transmitting a re-association frame from said STA to a first AP, said re-association frame including at least a second AP identifier and said second AP's corresponding channel of operation; and

10 (2) upon receiving the re-association frame at said first AP, storing said second AP identifier and said corresponding channel of operation in a nearest neighbor table associated with said first AP.

14. The method of Claim 13, wherein said first AP is an AP with which said
15 STA is attempting to form an association with in said handoff and said second AP is an AP with which said STA is currently associated with.

15. A method for minimizing a communication service disruption period during a handoff of an STA in a wireless local area network (WLAN), the method comprising the
20 acts of:

issuing from a first AP, a move-notification frame including a first AP identifier to a second AP ;

upon receiving the move-notification frame at said second AP, storing said first AP identifier in a nearest neighbor table associated with said second AP; and

25 obtaining, by said second AP, a channel of operation corresponding to said first AP; and

storing said channel of operation corresponding to said first AP in said nearest-neighbor table.

30 16. The method of Claim 15, wherein said act of obtaining, by said second AP, a channel of operation corresponding to said first AP is achieved via a frame exchange performed in accordance with a simple network management protocol (SNMP).

17. A method for minimizing a communication service disruption period during a handoff of an STA in a wireless local area network (WLAN), the method comprising the acts of:

5 (1) transmitting a move-notification frame from said STA to a first AP, said re-association frame including at least a second AP identifier and said second AP's corresponding channel of operation; and

(2) upon receiving the move-notification frame at said first AP, storing said second AP identifier and said corresponding channel of operation in a nearest 10 neighbor table associated with said first AP.

18. A system for minimizing a communication service disruption period which occurs during handoffs in a wireless local area network (WLAN), the system comprising:

means for providing a plurality of APs in the network with an assigned channel of 15 operation and a pre-configured nearest-neighbor table comprised of records, where each record includes at least a first field identifying a nearest neighbor AP and a second field identifying said nearest neighbor AP's channel of operation;

means for transmitting said pre-configured nearest-neighbor table from said plurality of APs to associated STAs; and

20 means for performing a prioritized search by said STA by first searching in each of said nearest neighbor AP's channel of operation as identified in said transmitted nearest-neighbor table to locate at least one candidate AP to form a new association with in said handoff.

25 19. The system of Claim 18, wherein said means for transmitting said pre-configured table from said plurality of APs to associated STAs further comprises means for transmitting a modified probe response frame including said pre-configured nearest-neighbor table.

30 20. The system of Claim 18, wherein said means for transmitting said pre-configured table from said plurality of APs to associated STAs further comprises means for transmitting a modified beacon frame including said pre-configured table.

21. The system of Claim 18, wherein said means for transmitting said pre-configured table from said plurality of APs to associated STAs further comprises means for transmitting a dedicated AP channel announcement management frame including said pre-configured table.

22 The system of Claim 18, further comprising:
means for changing said assigned channel of operation by one of said plurality of APs; and
means for performing a frame exchange in accordance with a simple network management protocol (SNMP) between said one of said plurality of APs and all other APs to inform said all other APs of said channel change.

23. A system for minimizing a communication service disruption period during a handoff of a mobile station (STA) in a wireless local area network (WLAN), the system comprising:

means for transmitting a re-association frame from said STA to a first AP, said re-association frame including a second AP identifier;
means for storing said second AP identifier in a nearest neighbor table associated with said first AP upon receiving the re-association frame at said first AP;
means for obtaining, by said first AP, a channel of operation corresponding to said second AP; and
means for storing said channel of operation in said nearest-neighbor table.

24. The system of Claim 23, wherein said first AP is an AP with which said STA is attempting to form an association with in said handoff and said second AP is an AP with which said STA is currently associated with.

25. The system of Claim 23, further comprising means for obtaining, by said first AP, a channel of operation corresponding to said second AP via a frame exchange in accordance with a simple network management protocol (SNMP).

26. A system for minimizing a communication service disruption period during a handoff of an STA in a wireless local area network (WLAN), the system comprising:

means for transmitting a re-association frame from said STA to a first AP, said re-association frame including at least a second AP identifier and said second AP's corresponding channel of operation; and

means for upon receiving the re-association frame at said first AP, storing said second AP identifier and said corresponding channel of operation in a nearest neighbor table associated with said first AP.

10 27. The system of Claim 26, wherein said first AP is an AP with which said STA is attempting to form an association with in said handoff and said second AP is an AP with which said STA is currently associated with.

15 28. A system for minimizing a communication service disruption period during a handoff of an STA in a wireless local area network (WLAN), the system comprising:

means for issuing from said first AP, a move-notification frame including a first AP identifier to said second AP ;

means for storing said first AP identifier in a nearest neighbor table associated with said second AP upon receiving the move-notification frame at said second 20 AP;

means for obtaining, by said second AP, a channel of operation corresponding to said first AP; and

means for storing said channel of operation corresponding to said first AP in said table.

25 29. The system of Claim 28, wherein said means for obtaining, by said second AP, a channel of operation corresponding to said first AP is achieved via a frame exchange in accordance with a simple network management protocol (SNMP).

30 30. A system for minimizing a communication service disruption period during a handoff of an STA in a wireless local area network (WLAN), the system comprising:

means for transmitting a move-notification frame from said STA to a first

AP, said re-association frame including at least a second AP identifier and said second AP's corresponding channel of operation; and

means for storing said second AP identifier and said corresponding channel of operation in a nearest neighbor table associated with said first AP upon receiving the

- 5 move-notification frame at said first AP.